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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/804,277 | 03/19/2004 | Charles David Musick | CL2585USNA | 7425 |

23906 7590 03/02/2006

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WILMINGTON, DE 19805

EXAMINER

VANOY, TIMOTHY C

ART UNIT PAPER NUMBER

1754

DATE MAILED: 03/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/804,277

Applicant(s)

MUSICK ET AL.

Examiner

Timothy C. Vanoy

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3 and 5-10 is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☒ Claim(s) 1 and 4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

a) The reference to a negative pressure in the abstract is questioned and objected to because it intuitively appears that the lowest theoretical pressure possible is 0 kPas (or 0 psig) – that is no pressure at all. It is not entirely clear how the pressure can be less than 0 kPas, since 0 kPas appears to be the lowest possible pressure.

Claim Objections

a) The reference to a negative pressure in claim 1 is questioned and objected to because it intuitively appears that the lowest theoretical pressure possible is 0 kPas (or 0 psig) – that is no pressure at all. It is not entirely clear how the pressure can be less than 0 kPas, since 0 kPas appears to be the lowest possible pressure.

b) Claim 4 is objected to because it does not further limit claim 1 in as much as claim 1 already recites that the surface area of the nanopowder ranges from about 30 to about 300 m²/g.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

None of the claims have been rejected under either 35USC102 or 35USC103.

While U. S. Patent 5,201,949 discloses a substantially similar process for making titanium dioxide particles by the oxidation of titanium tetrachloride in what appears to be the same flame reactor (please see col. 7 lines 1-7) at a temperature that is at least 800

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°C and a pressure that is at least about 10 psi (please see col. 2 lines 17-21), in the presence of: (i) water vapor in an amount ranging from 50 to 100,000 ppm based on the weight of titanium dioxide under production (please see col. 2 lines 22-25); (ii) a spacing gas (i. e. the applicants' diluent gas) in an amount that ranges from 1 to 100 mole percent based on the titanium tetrachloride and oxygen (please see col. 5 lines 31-38), and (iii) a nucleant consisting essentially of a cesium substance in an amount ranging from 8 to 2,000 ppm based on the weight of titanium dioxide under production, the applicants' independent claim limits the surface area of the titanium dioxide particles to range from 30 to 300 m²/g whereas Table 1 set forth in col. 7 in U. S. Patent 5,201,949 reports surface areas that range from 6.5 to 6.9 m²/g. All of the claim limitations must be taught or suggested by the prior art to establish a *prima facie* case of obviousness of a claimed invention: please see the discussion of the *In re Royka* 490 F.2d 981, 180 USPQ 580 (CCPA 1974) court decision set forth in section 2143.03 in the MPEP 8th Ed., Rev. 3, Aug. 2005.

The following references, which are indicative of the state of the art, are made of record:

U. S. Patent 5,508,015 disclosing a process for controlling the agglomeration in the manufacture of titanium dioxide;

U. S. Patent 3,505,091 disclosing the production of titanium dioxide pigments;

U. S. Patent 3,208,866 disclosing the manufacture of titanium dioxide;

U. S. Patent 2,833,627 disclosing a method for cooling the reaction products resulting from the oxidation of titanium tetrachloride;

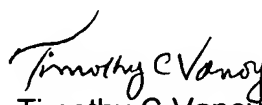
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U. S. Patent 2,559,638 disclosing the production of titanium dioxide, and
U. S. Patent 2,488,439 disclosing the production of titanium oxide pigments.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Timothy C Vanoy
Patent Examiner
Art Unit 1754

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